



# PATENT SPECIFICATION

NO DRAWINGS

938,576

*Inventors:* WILLIAM STEPHEN CHARLES KENNETT,  
GREGORY FRANK WEBB, ALAN CHARLES HILL  
and ANTHONY WILLIAM RASSELL

*Date of filing Complete Specification (under Section 3 (3) of the Patents Act, 1949):* Feb. 19, 1962.

*Application Date:* Feb. 24, 1961.

No. 6801/61.

*Application Date:* Feb. 24, 1961.

No. 6802/61.

*Complete Specification Published:* Oct. 2, 1963.

© Crown Copyright 1963.

*Index at acceptance:*—Class 87(2), A1R14(C1X:D), A7(A:B).

*International Classification:*—B29d, f.

## COMPLETE SPECIFICATION

### Improvements in and relating to Moulding Reinforced Flexible and Hollow Articles

We, PRESSED STEEL COMPANY LIMITED, a British Company of Cowley, in the City and County of Oxford, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to reinforced flexible and hollow articles formed from plastics materials and having one or more open ends, and concerns particularly the production of such articles formed in one piece and having a specific surface pattern.

The invention is applicable, for example, to the production of seat covers formed in one piece and used to cover sprung and padded seat units.

The object of the invention is to provide an improved process for the production of reinforced flexible and hollow articles having one or more open ends, formed in one piece from polyvinyl chloride plastisols and organosols having a specific surface pattern.

According to the invention, a layer of polyvinyl chloride plastisol or organosol is formed by a dipping or spraying process on a shaped male mould having the required surface pattern in negative form on its surface, the layer is partially cured, a layer of reinforcing fibres is applied to the first layer, a second layer of polyvinyl chloride plastisol or organosol is then formed by dipping or spraying in such a way that it bonds to the first plastics layer and around the reinforcing fibres, the plastics layers are then fully cured, and the formed article is removed from the mould and turned inside out.

The surface pattern in negative form on the surface of the mould is thereby transposed in positive form on to the outer surface of the reinforced hollow plastics article.

The reinforcing fibres are conveniently applied in the form of a woven or knitted sock or sheath, and the fibres may be cotton, glass, or one of the other known reinforcing fibres.

The invention will now be described by way of example, as applied to a process for the manufacture of a reinforced p.v.c. cover for a motor car seat squab.

A metal male mould or former having the pattern which it is desired to apply to the squab cover produced on its surface in negative form, is made by precision casting, electro-forming or similar techniques. The mould or former is heated to a temperature of 80—160°C in an air circulating oven; the precise temperature being determined by the p.v.c. plastisol used and the coating thickness required, and the thermal capacity of the mould. The mould is then dipped into a suitable grade of p.v.c. plastisol so that all of the mould except its upper side is immersed in the plastisol; the dipping is performed quickly enough to avoid an uneven coating but not so fast that air bubbles are introduced. To prevent runs the mould is left in the plastisol until its temperature has fallen to 45—50°C. It is then withdrawn at a controlled speed, predetermined by the viscosity of the plastisol, and at the correct withdrawal speed there is a minimum amount of plastisol left to drain off. It will be understood that due to the time the plastisol is maintained at an elevated temperature, the layer of plastisol will be only partially cured at this stage.

Reinforcement in the form of a woven or knitted cotton sock is then pulled over the coating. The dip coating procedure is then repeated giving a sandwich construction with the reinforcement embedded in p.v.c.

The mould and coating are heated to 170°C for 10—15 minutes, to fuse the layers of

p.v.c., give a composite structure, and fully cure the plastisol the mould and coating are then cooled to 35—50°C either in air or by dipping in water and the cover is removed from the mould and turned inside out. 20

5 WHAT WE CLAIM IS:—

1. A process for the production of reinforced flexible and hollow articles having one or more open ends formed in one piece from polyvinyl chloride and having a specific surface pattern, in which a layer of polyvinyl chloride plastisol or organosol is formed by a dipping or spraying process on a shaped male mould having the required surface pattern in negative form on its surface, the layer is partially cured, a layer of reinforcing fibres is applied to the first layer, a second layer of

polyvinyl chloride plastisol or organosol is then formed by dipping or spraying in such a way that it bonds to the first plastics layer and around the reinforcing fibres, the plastics layers are then fully cured, and the formed article is removed from the mould and turned inside out.

2. A process for the production of reinforced flexible and hollow articles formed in one piece from polyvinyl chloride and having a specific surface pattern, substantially as hereinbefore described. 25

T. M. CONNELLY,  
Chartered Patent Agent,  
Agent for the Applicants.